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Integrated Therapy for Aphasia: Treating Multiple Levels of Language Processing Concurrently

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Introduction

Models of sentence production generally identify multiple levels of processing that interact to produce spoken language. The approach taken by most models of aphasia treatment is to select a single level, such as word retrieval, syntax, or discourse, that is notably impaired or spared, and target this single level for intervention. This paper investigates the efficacy of a new approach to aphasia intervention in which multiple levels of language processing are treated simultaneously in an integrated protocol. Prior research supporting an integrated approach to aphasia therapy can be found in the broader cognitive science literature, particularly from the fields of neuroscience, psychology, and second language learning. Specific examples of such paradigms include: neural network models that emphasize the interactions across different cognitive processes, whole-part-whole theories of learning that stress the advantages of training complex behaviors in terms of both component tasks and integrated complete behaviors, and applied models of second language learning which focus on isolated vocabulary and grammar drills as well as interactive communications. Within the field of aphasia, a handful of studies that have compared outcomes for single component vs. multiple component interventions, provide further support for an integrated approach to aphasia therapy (Beeson & Egnor, 2006; Drew & Thompson, 1999).

Methods

In this paper we used a single subject multiple baseline design across participants and behaviors to examine the efficacy of Integrated Therapy in three individuals diagnosed with nonfluent aphasia. Four independent treatment modules were administered. Each module focused on a specific semantic topic and took approximately two months to complete. Within each module, every treatment session consisted of four tasks: 1) training a core set of vocabulary related to the topic (e.g. favorite foods), 2) a syntax drill in which the core vocabulary was used to produce grammatically correct sentences ('I am eating pizza'), 3) dialogue training in which the core vocabulary and grammar were practiced in a fixed script, and 4) informal conversational scaffolding centered on the core vocabulary and grammar. In addition, participants completed daily computer-based homework exercises and attended a weekly communication group that also centered on the module's core vocabulary and syntax training.

Results and Conclusions

Probe data collected prior to each treatment session indicated that all three participants acquired the trained vocabulary and syntactic structures. In addition, generalization was observed within and across semantic categories. Not surprisingly, improvements in producing the target vocabulary preceded improvements in producing the target sentence structures, suggesting that mastery of the target vocabulary facilitated sentence production. Pre and post testing on a battery of quantitative and qualitative measures revealed a variable pattern of

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generalization reflecting individual participant profiles. Results will be discussed in reference to current sentence processing and neurolinguistic models.

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